In the Claims

1. (Original) A voltage compensation unit for reducing the effects of induced voltages upon a device to a safe level, comprising:

a sensing circuit to sense voltages induced in conductive components of the device, the voltages being induced by changing magnetic fields; and

a compensation circuit, operatively connected to said sensing circuit and responsive thereto, to provide opposing voltages to the device to reduce the effects of induced voltages caused by changing magnetic fields.

2. (Original) The voltage compensation unit as claimed in claim 1, further comprising a power supply.

3. (Original) The voltage compensation unit as claimed in claim 2, wherein said power supply is a battery.

4. (Original) The voltage compensation unit as claimed in claim 1, further comprising:

a second sensing circuit to detect the changing magnetic fields;

said compensation circuit, operatively connected to said second sensing circuit and responsive thereto, to synchronize application of the opposing voltages to the device with the sensed changing magnetic fields.

5. (Original) The voltage compensation unit as claimed in claim 1, wherein said compensation circuit is shielded from the changing magnetic fields.

6. (Original) The voltage compensation unit as claimed in claim 1, further comprising

a connection device to provide an electrical connection between said sensing circuit and said compensation circuit and the device.

7. (Original) The voltage compensation unit as claimed in claim 6, wherein said connection device provides multiple electrical connections between said sensing circuit and said compensation circuit and the device.

8. (Original) The voltage compensation unit as claimed in claim 7, wherein said connection device is electrically connected to the device at unequally spaced intervals.

9. (Original) The voltage compensation unit as claimed in claim 7, wherein a portion of said multiple electrical connections of said connection device is electrically connected to non-resonance node points of the device.

10. (Original) A voltage compensation unit for reducing the effects of induced voltages upon a tissue invasive medical tool to a safe level, comprising:

a sensing circuit to sense voltages induced in conductive components of the medical tool, the voltages being induced by changing magnetic fields;

a compensation circuit, operatively connected to said sensing circuit and responsive thereto, to provide opposing voltages to the medical tool to reduce the effects of induced voltages caused by changing magnetic fields; and

a connection device to provide an electrical connection between said sensing circuit and said compensation circuit and the medical tool.

11. (Original) The voltage compensation unit as claimed in claim 10, wherein said connection device provides multiple electrical connections along the medical tool.

12. (Original) The voltage compensation unit as claimed in claim 11, wherein said connection device is electrically connected to the medical tool at unequally spaced intervals.

13. (Original) The voltage compensation unit as claimed in claim 11, wherein a portion of said multiple electrical connections of said connection device is electrically connected to non-resonance node points of the medical tool.

14. (Original) The voltage compensation unit as claimed in claim 10, further comprising:

a second sensing circuit to detect changing magnetic fields;

said compensation circuit, operatively connected to said second sensing circuit and responsive thereto, to synchronize application of opposing voltages to the medical tool with the sensed changing magnetic fields, said opposing voltages reducing the effects of induced voltages caused by the changing magnetic fields.

15. (Original) The voltage compensation unit as claimed in claim 10, wherein said compensation circuit is shielded from the changing magnetic fields.

16. (Currently Amended) A voltage compensation unit for reducing the effects of induced voltages upon a device to a safe level, comprising:

a communication circuit, communicatively linked to a MRI system, to receive, from the MRI system, information associated with a start and end of an application of changing magnetic fields produced by the MRI system; and

a compensation circuit, operatively connected to said communication circuit and responsive thereto, to synchronize application of opposing voltages to the device with the start and end of ~~sensed~~ the application of the changing magnetic fields produced by the MRI system, said opposing voltages reducing the effects of induced voltages caused by the changing magnetic fields.

17. (Original) The voltage compensation unit as claimed in claim 16, further comprising

a connection device to provide an electrical connection between said compensation circuit and the device.

18. (Original) The voltage compensation unit as claimed in claim 17, wherein said connection device provides multiple electrical connections between said compensation circuit and the device.

19. (Original) The voltage compensation unit as claimed in claim 18, wherein said connection device is electrically connected to the device at unequally spaced intervals.

20. (Original) The voltage compensation unit as claimed in claim 18, wherein a portion of said multiple electrical connections of said connection device is electrically connected to non-resonance node points of the device.

21. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives information associated with MRI scan pulse sequences to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated applied MRI scan pulse sequences.

22. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives information associated with timing of application of fields and pulse shapes thereof to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated timing of applied fields and pulse shapes thereof.

23. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives information associated with pulse shapes of a field to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated applied pulse shapes.

24. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through electrical wires.

25. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through coaxial wires.

26. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through shielded wires.

27. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through optical fibers.

28. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through a radio-frequency transmitter/receiver.

29. (Original) The voltage compensation unit as claimed in claim 16, wherein said communication circuit receives the information through an acoustic transmitter/receiver.

30. (Currently Amended) A voltage compensation unit for reducing the effects of induced voltages upon a device to a safe level, comprising:

a communication circuit, communicatively linked to a MRI system, to receive, from the MRI system, information associated with a start and end of an application of changing magnetic fields produced by the MRI system; and

a compensation circuit, operatively connected to said communication circuit and responsive thereto, to apply opposing voltages to the device, said opposing voltages reducing the effects of induced voltages caused by the changing magnetic fields.

31. (Original) The voltage compensation unit as claimed in claim 30, further comprising

a connection device to provide an electrical connection between said compensation circuit and the device.

32. (Original) The voltage compensation unit as claimed in claim 31, wherein said connection device provides multiple electrical connections between said compensation circuit and the device.

33. (Original) The voltage compensation unit as claimed in claim 32, wherein said connection device is electrically connected to the device at unequally spaced intervals.

34. (Original) The voltage compensation unit as claimed in claim 32, wherein a portion of said multiple electrical connections of said connection device is electrically connected to non-resonance node points of the device.

35. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives information associated with MRI scan pulse sequences to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated applied MRI scan pulse sequences.

36. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives information associated with timing of application of fields and pulse shapes thereof to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated timing of applied fields and pulse shapes thereof.

37. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives information associated with pulse shapes of a field to be applied by the MRI system;

said compensation circuit applies opposing voltages in accordance with communicated applied pulse shapes.

38. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through electrical wires.

39. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through coaxial wires.

40. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through shielded wires.

41. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through optical fibers.

42. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through a radio-frequency transmitter/receiver.

43. (Original) The voltage compensation unit as claimed in claim 30, wherein said communication circuit receives the information through an acoustic transmitter/receiver.

44. (Currently Amended) A voltage compensation unit for reducing the effects of induced voltages upon a device having a single wire line, the single wire line having a balanced characteristic impedance, comprising:

a tunable compensation circuit, operatively connected to the wire line, to apply variable supplemental impedance to the wire line, said variable supplemental impedance causing the characteristic impedance of the wire line to become unbalanced, thereby reducing the effects of induced voltages caused by changing magnetic fields.

45. (Original) The voltage compensation unit as claimed in claim 44, wherein said tunable compensation circuit is a plurality of variable capacitors.

46. (Original) The voltage compensation unit as claimed in claim 44, wherein said tunable compensation circuit is a balun.

47. (Original) The voltage compensation unit as claimed in claim 44, wherein said tunable compensation circuit is an IF amplifier, said IF amplifier automatically applying supplemental impedance to the wire line to cause the characteristic impedance of the wire line to become unbalanced.

48. (Original) The voltage compensation unit as claimed in claim 44, wherein said tunable compensation circuit is manually tunable to change an amount of said supplemental impedance being applied to the wire line.

49. (Original) The voltage compensation unit as claimed in claim 2, wherein said power supply is a connection to an external power source.